

DETAILED PLANTING SCHEDULE

TREES	Number	Species	Abbreviation	Girth	Height	Specification	Density
6 No.	Acer campestre 'Streetwise'	ACS	14-16cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
12 No.	Amelanchier lamarkii	Al	14-16cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
8 No.	Betula ermanii	Be	12-14cm	RB	Heavy Standard		Counted
4 No.	Betula papyrifera	Bpa	2.5-3.0m	RB	Multi-Stemmed		Counted
10 No.	Betula pendula	Bp (m)	14-16cm	RB	Extra Heavy Standard		Counted
13 No.	Betula pendula (Multi-Stemmed)	Bp (m)	2.5-3.0m	RB	Multi-Stemmed		Counted
14 No.	Betula pubescens	Bpb	2.5-3.0m	RB	Multi-Stemmed		Counted
11 No.	Betula utilis var. jacquemontii	Bu J	14-16cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
4 No.	Carpinus betulus 'Fastigiata'	CbF	3.0-4.0m	C	Feather		Counted
13 No.	Carpinus betulus 'streetwise'	Cb'S'	14-16cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
9 No.	Cornus kousa Chinensis	KCC	14-16cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
9 No.	Liquidambar styraciflua	LS	14-16cm	RB	Extra Heavy Standard		Counted
14 No.	Malus domestica 'Cox's Orange Pippin'	Md'COPI	12-14cm	RB	Heavy Standard		Counted
2 No.	Nyssa sylvatica	Ns	14-16	RB	Extra Heavy Standard		Counted
5 No.	Parrotia persica	Pp	2.5-3.0m	RB	Multi Stem		Counted
8 No.	Prunus 'Umineko'	PUJ	14-16cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
7 No.	Prunus serrula	Ps	14-16cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
7 No.	Prunus Serrula (Multi-Stemmed)	Ps (m)	2.5-3.0m	RB	Multi-Stemmed		Counted
9 No.	Pyrus calleryana 'Chanticleer'	Pc'C	16-18cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
10 No.	Pyrus calleryana 'Redspire'	Pc'R	14-16cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
6 No.	Quercus palustris 'Green Pillar'	Qp'GP	3.0-4.0m	RB	Feather		Counted
16 No.	Quercus robur	Qr	14-16cm	RB	Extra Heavy Standard		Counted
1 No.	Quercus rubra	Qru	14-16cm	RB	Extra Heavy Standard		Counted
5 No.	Sorbus aucuparia	Sa	14-16cm	RB	Extra Heavy Standard		Counted
11 No.	Tilia cordata 'Green Spire'	TcGS'	16-18cm	RB	Extra Heavy Standard	Clear Stem 150-175	Counted
Total :212 No.							

NATIVE UNDERSTOREY PLANTING MIX

Number	Species	Height	Pot Size	Specification	Density
719 No.	Acer campestre			Native Understorey Planting Mix	1C1r
479 No.	Betula pendula			Native Understorey Planting Mix	1C1r
719 No.	Cornus sanguinea	60-80cm	BR	Native Understorey Planting Mix	1C1r
479 No.	Corylus avellana			Native Understorey Planting Mix	1C1r
719 No.	Crataegus monogyna	100-125cm	BR	Native Understorey Planting Mix	1C1r
479 No.	Ilex aquifolium	80-100cm	BR	Native Understorey Planting Mix	1C1r
719 No.	Prunus spinosa	60-80cm	BR	Native Understorey Planting Mix	1C1r
479 No.	Viburnum opulus	60-80cm	BR	Native Understorey Planting Mix	1C1r
Total :4792 No.					

HEDGING

Number	Species	Height	Pot Size	Specification	Density
1811 No.	Carpinus betulus	80-100cm	5L	BR	0.3C1r Double Staggered at 0.3m offset
527 No.	Ilex crenata	40-60cm	3L	C	0.3C1r Double Staggered at 0.3m offset
Total :2338 No.					

SHRUBS

Number	Species	Height	Pot Size	Specification	Density
14 No.	Berberis thunbergii 'Atropurpurea'	60-80cm	3L	C	5/m²
68 No.	Ceratostigma willmottianum	30-40cm	5L	C :Bushy	7/m²
133 No.	Choisya 'Aztec Pearl'	40-60cm	3L	C	5/m²
133 No.	Choisya ternata 'Sundance'	40-60cm	3L	C	5/m²
95 No.	Cornus alba 'Elegantissima'	60-80cm	3L	C	5/m²
27 No.	Cornus alba 'Sibirica'	40-60cm	3L	C	5/m²
820 No.	Cornus sanguinea 'Midwinter Fire'	60-80cm	3L	C	5/m²
9 No.	Cornus sanguinea 'Midwinter Fire'	60-80cm	10L	C	Counted
221 No.	Cornus sericea 'Flaviramea'	60-80cm	3L	C	5/m²
5 No.	Crataegus monogyna	2.5m		RB :Multi-Stemmed	Counted
502 No.	Eunymus fortunei 'Dart's Blanket'	20-30cm	3L	C	7/m²
50 No.	Eunymus fortunei 'Emerald Gaiety'	20-30cm	3L	C :Bushy	7/m²
163 No.	Hebe 'Caledonia'	30-45cm	5L	C	7/m²
21 No.	Hebe 'Margret'	30-45cm	5L	C	7/m²
111 No.	Hebe 'Red Edge'	30-40cm	5L	C	7/m²
576 No.	Hebe rakaiensis	30-40cm	5L	C	7/m²
585 No.	Ilex crenata	30-40cm	3L	C :Bushy	5/m²
313 No.	Lavandula angustifolia 'Hidcote'	20-30cm	5L	C :Bushy	7/m²
29 No.	Lavandula intermedia 'Alba'	20-30cm	5L	C	7/m²
593 No.	Lavandula stoechas	20-30cm	5L	C	5/m²
191 No.	Pachysandra terminalis 'Green Carpet'	20-30cm	3L	C	7/m²
223 No.	Perovskia atriplicifolia 'Blue Spire'	40-60cm	3L	C	7/m²
201 No.	Phormium 'Platt's Black'	40-60cm	3L	C	7/m²
62 No.	Pittosporum tenuifol. 'Irene Patterson'	40-60cm	3L	C	5/m²
101 No.	Pittosporum tenuifol. 'Silver Queen'	40-60cm	3L	C	5/m²
163 No.	Pittosporum tenuifolium 'Golf Ball'	40-60cm	5L	C :Bushy	5/m²
82 No.	Pittosporum tenuifolium 'Tom Thumb'	40-60cm	5L	C :Bushy	7/m²
165 No.	Rosmarinus officinalis 'Miss Jessopp's Upright'	40-60cm	5L	C	5/m²
58 No.	Salix alba	60-80cm	3L	C	5/m²
123 No.	Sarcococca hookeriana diglyna	40-60cm	5L	C	5/m²
227 No.	Viburnum opulus 'Compactum'	20-30cm	5L	C	3/m²
85 No.	Viburnum tinus 'French White'	60-80cm	10L	C :Bushy	3/m²
Total :7265 No.					

HERBACEOUS

Number	Species	Pot Size	Specification	Density
28 No.	Acanthus mollis	3L	Full Pot	5/m²
38 No.	Achillea 'Moonshine'	3L	Full Pot	7/m²
42 No.	Anemone hepuchensis 'September Charm'	3L	Full Pot	Counted
70 No.	Anemone hybrida 'Hononine Jobert'	3L	Full Pot	Counted
11 No.	Anemone hybrida 'Queen Charlotte'	3L	Full Pot	5/m²
13 No.	Aster frikarti 'Monch'	3L	Full Pot	7/m²
46 No.	Bergenia 'Bressingham Salmon'	3L	Full Pot	9/m²
259 No.	Bergenia 'Bressingham White'	3L	Full Pot	9/m²
148 No.	Brunnera macrophylla 'Jack Frost'	3L	Full Pot	9/m²
6 No.	Crocossmia x c 'George Davison'	3L	Full Pot	Counted
81 No.	Echinacea purpurea	3L	Full Pot	9/m²
52 No.	Echinacea purpurea	3L	Full Pot	Counted
94 No.	Echinacea purpurea 'Magnus'	3L	Full Pot	Counted
149 No.	Geranium himalayense 'Gravetye'	3L	Full Pot	7/m²
99 No.	Hyotylephium telephium 'Purple Emperor'	3L	Full Pot	7/m²
70 No.	Liriope muscari	3L	Full Pot	9/m²
167 No.	Liriope muscari 'Monroe White'	3L	Full Pot	9/m²
69 No.	Luzula sylvatica 'Aurea'	3L	Full Pot	9/m²
36 No.	Ophiopogon planiscapus 'Nigrescens'	3L	Full Pot	9/m²
14 No.	Rodgersia pinnata 'Superba'	3L	Full Pot	7/m²
194 No.	Rudbeckia fulgida 'Goldsturm'	3L	Full Pot	9/m²
16 No.	Salvia nemorosa 'Amethyst'	3L	Full Pot	7/m²
41 No.	Stachys byzantina 'Silver Carpet'	3L	Full Pot	9/m²
155 No.	Symphoricarum 'Little Calow'	3L	Full Pot	5/m²
154 No.	Tiarella 'Spring Symphony'	3L	Full Pot	9/m²
167 No.	Verbena banariensis	3L	Full Pot	Counted
Total :2219 No.				

CLIMBERS

Number	Species	Height	Pot Size	Specification	Density
14 No.	Clematis montana	80-100cm	10L	Caned	Counted
2 No.	Hedera helix 'Green Ripple'	80-100cm	10L	Caned	Counted
6 No.	Hydrangea petiolaris	80-100cm	10L	Caned	Counted
11 No.	Jasminum officinale	80-100cm	10L	Caned	Counted
2 No.	Parthenocissus tricuspidata	80-100cm	10L	Caned	Counted
4 No.	Pyracantha 'Saphyr Orange'	80-100cm	10L	Caned	Counted
Total :39 No.					

SOFT SPECIFICATION NOTES

Proposed Tree Planting

Nursery Stock and Selection

All trees and planting are to be selected and tagged by the landscape architect prior to any stock being delivered to site. All planting should comply with the requirements specified in BS 3936:1992 'Nursery Stock' (Part One). All nursery stock and trees are to be free of pest and diseases prior to being delivered to site. All delivered stock is to be inspected by the landscape architect prior to any planting being carried out.

The Landscape architect reserves the right to reject trees and nursery stock that do not meet specifications as set out in the requirements and guidelines in BS 3936:1992 or in accordance with the landscape architects drawings. If a particular defect or substandard element can be corrected easily, appropriate remedies shall be applied and agreed with the landscape architect. If destructive inspection of a root ball is to be carried out, agreement should be in place prior as to the time and place of inspection. Inspection of shrub roots in containers or rootball can be carried out on site if required.

Tree Handling

It is recommended that companies that do not have experience with handling large trees or the required equipment to do so seek advice from the landscape architect or tree supplier. Furthermore, specialist hauliers are to be used who will have the correct lifting equipment to deal with unloading large trees.

The landscape contractor is to follow standards set out in BS 8545:2014 'Trees: from nursery to independence in the landscape – Recommendations'

The landscape contractor must follow the industry guidance method for handling trees. Below are recommended industry standards.

Dormant trees sizes of 12-16cmg

These can be lifted and unloaded using a root hook and hoist. Even when the tree is dormant it is recommended to wrap the stem in hessian for additional protection when unloading maintaining the lifting weight on the root hooks.

Dormant trees sizes of 18-20cmg - 25-30cmg

These can be lifted and unloaded using a 3 tonne sling in combination with a chain and root hooks. Even when the tree is dormant it is recommended to wrap the stem in hessian for additional protection when unloading.

Tree Planting

The tree supplier is to be approved by landscape architect prior to any ordering of stock. All trees are to be planted in the first available planting season after construction as root balled stock unless otherwise specified and agreed with the client. All tree pits are to be excavated 24 hours prior to delivery to reduce the time the rootball is out of the ground. All tree pits are to be excavated under favourable weather conditions to avoid deterioration of the soil structure and glazing. All excavations are to be carried out using a toothed bucket ensuring tree pit walls are not glazed, the walls of the tree pit can also be loosened with hand held tools.

Tree pit dimensions are subject to soil conditions, soil report provided by agronomist and rootball size. Tree pits can never be excavated too wide in an unrestricted space (open ground), however they can be too deep.

All trees are to be planted at the correct height which is the same depth as the tree was growing on the nursery. The root collar must remain visible. Tree pit sizes are to be agreed with landscape architect prior to excavations. All tree pits are to be inspected by the landscape architect prior to planting. All tree pits are to have suitable irrigation pipe and end cap and aeration tubes if required (aeration tubes tend to be required for trees planted in a hard landscape environment). They are only required for the first two years after which they are superfluous. All irrigation pipes are to be placed as high as possible not at the base of the rootball. The tree would also benefit from an earth reservoir around the rootball on the surface to aid watering. The reservoir is best backfilled with bark mulch to avoid soil glazing on the surface.

All trees and planting are to be selected and tagged by the landscape architect prior to any stock being delivered to site. All planting should comply with the requirements specified in BS 3936:1992 'Nursery Stock' (Part One). All nursery stock and trees are to be free of pest and diseases prior to being delivered to site. All delivered stock is to be inspected by the landscape architect prior to any planting being carried out.

- The Landscape architect reserves the right to reject trees and nursery stock that do not meet specifications as set out in the requirements and guidelines in BS 3936:1992 or in accordance with the landscape architects drawings. If a particular defect or substandard element can be corrected easily, appropriate remedies shall be applied and agreed with the landscape architect. If destructive inspection of a root ball is to be carried out, agreement should be in place prior as to the time and place of inspection. Inspection of shrub roots in containers or rootball can be carried out on site if required.

Notes: Trees may sink after planting due to soil settlement. With sandy soils generally there will be a settlement of 10% and clay soils 20%, this will need to be considered by the landscape contractor when planting and therefore the tree may need to be planted slightly higher to accommodate soil settlement. Note: Never excavate deeper than the highest water table to ensure organic matter does not come in contact with groundwater resulting in anaerobic digestion within the soil.

All hessian and wire supports around the rootball are to remain in place when planting (in some case it may be required to loosen the hessian and wire). The hessian will quickly decompose. The wire will oxidize and also disappear in the soil eventually.

Trees planted within hard landscape areas are to have tree grilles and guards where specified. Subterranean cellular product is to be used to ensure the tree has a minimum of 9m3 growing area. Type and manufacture is to be agreed with the client and landscape architect prior to installation. The landscape architect is to inspect all tree pits prior to planting.

Trees are to be supported either by high anchoring, low anchoring or underground anchoring systems. The type of anchoring system is to be agreed with the landscape architect and detailed within the specification of works. For trees that are <10-12cmg use 1no untreated softwood stake at min 10cm diameter driven into the ground at least 1m depth (30cm of which must be in undisturbed ground), the stake is to be placed on the side of the prevailing wind. Trees >10-12cmg use 2no untreated softwood stakes at min 10cm diameter driven into the ground at least 1m depth with horizontal bracing bar. Trees >25-30cmg use 3no stakes in a triangle around the tree (1.4m above ground level) with horizontal bracing bars, tree bands are to be secured to the posts with galvanised nails.

Underground anchoring systems are to be used for large compact rootballs or trees within hard landscape with tree grilles to BS 4043: 1989/ Recommendations for Transplanting Root-Balled Trees'. The type of anchoring system is to be agreed with the landscape architect. Biodegradable anchoring straps are to be used to ensure the straps do not grow into the trunk.

Note: There are benefits to using low level anchoring as field trials have demonstrated that the tree becomes independent in the ground quicker as a result of the wind rocking the tree that encourages root ground. However, this method is not recommended in exposed conditions or coastal locations due to a greater risk of the trunk breaking.

Ties and stakes are to be checked and adjusted every six months or after periods of strong wind and rain.

All topsoil is to conform to BS 3882:2007 'Multipurpose' or similar approved by an agronomist. The tree pit shall be backfilled with previously prepared topsoil excavated from the pit and additional topsoil as required. All backfilled material is to include an organic slow release fertilizer to ensure there is no adverse affect on soil organisms (Vltax Q4HN) or similar approved at a ratio of 10 :7.5 :10.2 + TE. The second application to be made 10-16 weeks after planting depending on soil type and weather conditions.

Tree pit root barriers are to be installed to all trees within 3m of any underground service routes or within 2.0m of kerb lines & hard surfaces & building foundations. Type of root barrier material is to be agreed with the landscape architect. The landscape contractor is to confirm locations of all services prior to implementation of trees. Prior to installation NJUG specification and requirements are to be referred too.

Guidance for Tree Pit Sizes within Soft Landscape Areas

Final tree pit size will vary dependent on size of rootball, tree stock and soil type.

Below are general guidance sizes only. The landscape contractor is to speak to the grower to obtain exact sizes prior to delivery. Landscape Architect to inspect tree pits prior to planting.

Tree pit size guidelines:

Tree size	Rootball Size	Tree pit size (length, width, depth)
14-16 cmg	50x50cm	80x80x65cm
18-20 cmg	60x60cm	80x80x75cm
20-25 cmg	70x60cm	90x90x75cm

Tree aftercare and pruning

When a tree is lifted/harvested it will lose a percentage of it's root system. As a result the roots are unable to supply the crown with the water demand being placed on the root system which can cause stress to the tree. As a result the tree will respond by reducing the amount of foliage, in some cases when the water storage is great the tree will shed wood from the crown. Watering the tree is important in the first two years after transplanting. In very hot conditions the canopy can dry out even when the rootball is moist simply because there is not enough root development yet. Therefore, the only solution is to reduce the canopy volume to reduce the stress.

All pruning is to be done by removing first and second wood only, all pruning works are to be carried out by appropriately trained landscape contractors.

It is recommended that hessian is placed around the tree stems after planting to prevent the overheating of the trunks.

The flow of water within the bark will normally prevent this, however, after planting less water is transplanted and as a result the trunk is at risk of sunburn. The setting sun will cause the most potential damage. Most of the damage will be visible on the western side of the tree. Trees with smooth bark are more vulnerable to sunburn than trees with rough bark.

Note: This is to only be done as a temporary measure as the tree is establishing, after which the hessian is to be removed.

Monitoring of the trees is to be carried out during the rectification period and as part of the long term management. The following points are to be considered and monitored;

- Watering, trees will require watering for the first two years after planting, after which they will generally look after themselves. The number of times will depend on location, weather conditions and growing season. Therefore, as the tree is a growing organism the required experience and knowledge will determine the number of times the tree is watered to ensure establishment. It is better to give the tree a lot of water once a week rather than water every day as this will encourage root development and prevent the tree becoming "lazy". Over watering will push oxygen away from the root system preventing root development.
- Soil condition, these can be carried out by a specialist to monitor the oxygen levels (that should ideally be 18-21%, 16-18% will be sufficient levels, 12-16% will be poor levels <5% shows acute root mortality). Soil moisture levels both within the rootball and surrounding ground to also be monitored
- Soil compaction, traffic over planted areas or areas to be planted are to be limited or ideally avoided completely. When soil compaction is higher than 2.5MPa root development will not be possible.
- Canopy, monitor leaf development, size, colour and the amount of foliage that is within the crown. Length of new growth and bud development and size of buds.

Proposed Ornamental Shrub / Perennial Planting

- To be planted in a minimum of 300mm depth approved topsoil to BS 3882: 2015 'Multipurpose' in the first available planting season after construction.
- All shrubs are to be planted as container stock unless otherwise specified (5 or 10 litre), all stock is to be well rooted into the container but not pot bound.
- All shrubs are to be planted with a slow release organic fertilizer (vltax or similar approved) and backfilled with a mixture of excavated top soil and compost (not peat based). A minimum of 50 mm approved ornamental grade bark mulch is to be applied to planting areas unless stated otherwise.

Proposed Hedge Planting

- To be planted in a minimum of 300mm depth approved topsoil to BS 3882: 2015 'Multipurpose' in the first available planting season after construction.
- All shrubs are to be planted as container stock unless otherwise specified (5litre), all stock is to be well rooted into the container. All hedge are to be planted in double staggered rows.
- All shrubs are to be planted with a slow release organic fertilizer (vltax or similar approved) and backfilled with a mixture of excavated top soil and compost (not peat based). A minimum of 50 mm approved ornamental grade bark mulch is to be applied to planting areas unless stated otherwise.

Planting Guidelines

- All planning and landscape operations should comply with the requirements specified in BS 3936-4:2007 'Nursery Stock' (Part One) and BS4428:1989 'Code of Practice for General Landscape Operations' (excluding hard surfaces).
- All topsoil and testing to conform to BS 3882: 2015 'Specification for Topsoil and Requirements for Use'.
- All topsoil used for planting to be tested by an approved Topsoil Analyst and any required amelioration or soil improvements to be carried out in line with Analyst's report.
- All fertilizers are to be applied or supervised by qualified staff to avoid the action of phytomolysis.
- Nurseries to provide protocols for ensuring that plant stock is free of invasive species.
- No planting is to be carried out when the site is covered by frost.
- Irrigation of plant material to be carried out during periods of drought will be required to ensure successful establishment of all plant stock.
- All new planting to be protected from mammal grazing by individual guards or stock proof fencing.
- If planting is to be carried out outside the growing season, all bareroot / rootballed plant stock is to be substituted with containerised stock. Specification to be agreed with Landscape Architect prior to ordering and implementation.

Proposed amenity grass (GT1) All amenity grass areas to be Medallion turf as supplied by 'Rotawn' or similar and approved.

All turf to be laid on 150mm depth approved topsoil to BS 3882:2007 'Multipurpose'.